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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO.       |
|--|-------------|----------------------|---------------------|------------------------|
| 10/668,255   | 09/24/2003  | Thomas J. Hunt       | CS-21,256           | 3290                   |
| 27182  | 7590        | 04/17/2006           | EXAMINER            |                        |
| <b>PRAXAIR, INC.</b><br>LAW DEPARTMENT - M1 557<br>39 OLD RIDGEBURY ROAD<br>DANBURY, CT 06810-5113 |             |                      |                     | EDMONDSON, LYNNE RENEE |
|  |             | ART UNIT             |                     | PAPER NUMBER           |
|  |             | 1725                 |                     |                        |

DATE MAILED: 04/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                             |                  |
|------------------------------|-----------------------------|------------------|
| <b>Office Action Summary</b> | Application No.             | Applicant(s)     |
|                              | 10/668,255                  | HUNT ET AL.      |
|                              | Examiner<br>Lynne Edmondson | Art Unit<br>1725 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 19 January 2006.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-20 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 24 September 2003 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_

## DETAILED ACTION

### ***Double Patenting***

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1, 2, 13 and 18 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 of copending Application No. 10/852117. Although the conflicting claims are not identical, they are not patentably distinct from each other because both teach bonding a sputtering target to an Al backing plate with grooves (instant claims) or channels ('117 claims) through solder (instant claims) or an insert ('117 claims).

It would have been obvious to one of ordinary skill in the art at the time of the invention that the channels and grooves are similar structures and that the solder and insert serve the same function, to bond the target to the backing plate. This is a

provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

3. Claims 1, 2, 13 and 18 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 2, 3, 5, 6, 8 and 9 of U.S. Patent No. 6708870 B2. Although the conflicting claims are not identical, they are not patentably distinct from each other because both teach bonding a sputtering target to an Al backing plate with grooves (instant claims) through solder (instant claims) or an insert ('870 claims).

It would have been obvious to one of ordinary skill in the art at the time of the invention that the solder and insert serve the same function, to bond the target to the backing plate.

#### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-11 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Ogata et al. (JPN 02-43362A).

Ogata teaches a disc shaped sputter target/backing plate assembly made by forming spaced apart ridges (3) within the surface of the backing plate (1), forming a sputter target with a substantially flat sputtering surface (2) and bonding surface, applying solder material (4) to the interface spaces and allowing the solder to solidify to form a bond (abstract and figure 1). Ridges are circular, arcuate or polygonal (figures 3-1 to 3-4) with heights and widths of about 0.02 to about 0.06 inches with a distance between ridges (pitch) of up to about 0.4 inches (abstract). Column 8 paragraph 2 of the patent teaches use of a Ag/Cu material.

6. Claims 1-3, 12, 13, 18 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Koenigsmann et al. (USPN 6708870 B2).

Koenigsmann teaches a disc shaped sputter target/backing plate assembly made by forming spaced apart square ridges within the surface of the backing plate (16), forming a sputter target with a substantially flat sputtering surface (12) and bonding surface, applying solder material (14) to the interface spaces and allowing the solder to solidify to form a bond (figures 1 and 2 and col 2 lines 15-26). Targets comprise Al or Ti. Backing plates comprise Al (col 2 lines 42-61) or Cu (col 6 lines 37-43).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome

either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 12-17, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogata et al. (JPN 02-43362A) in view of Ivanov (US 20050284749 A1).

Ogata teaches a disc shaped sputter target/backing plate assembly made by forming spaced apart ridges (3) within the surface of the backing plate (1), forming a sputter target with a substantially flat sputtering surface (2) and bonding surface, applying solder material (4) to the interface spaces and allowing the solder to solidify to form a bond (abstract and figure 1). Ridges are circular, arcuate or polygonal (figures 3-1 to 3-4) with heights and widths of about 0.02 to about 0.06 inches with a distance between ridges (pitch) of up to about 0.4 inches (abstract). Column 8 paragraph 2 of

the patent teaches use of a Ag/Cu material. However the target and backing materials are not disclosed. Neither is the solder clearly disclosed.

Ivanov teaches bonding of a target comprising Ta, Al, Ag, Cu, Ti, Ta, Co or Ni and a backing plate comprising Al, Ti, Cu and their alloys (paragraph 39), which are conventional materials. The solder comprises Sn-Ag-Cu (paragraph 33).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use conventional target and backing plate materials with a conventional solder such as Sn-Ag-Cu to form a reliable connection when bonding sputtering assemblies, particularly assemblies comprising Ag and Cu.

### ***Response to Arguments***

9. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Zhang (USPN 6071389), Mueller et al. (USPN 5230459, no solder), Demaray et al. (USPN 5676803), Hurwitt et al. (USPN 5879524, Sn-Pb, Sn-In), Kachalov et al. (US 2005/0011749 A1, Sn,Pb, In, Ag and/or Cu) and Wickersham, Jr. et al. (US 2004/0079634 A1, method, article, Sn-Ag, Sn-Pb solder).

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynne Edmondson whose telephone number is (571) 272-1172. The examiner can normally be reached on Monday through Thursday from 6:30 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lynne Edmondson  
Primary Examiner  
Art Unit 1725

*ME*  
*4/3/02*

LRE